

Claims

1. An airless application system comprising:
 - a primary product container; and
 - a sprayer in fluid communication with the primary product container, the sprayer comprising:
 - a sprayer tip;
 - a primary product chamber for holding a primary product to be dispensed through the sprayer tip, the primary product chamber in selective fluid communication with the sprayer tip, the primary product chamber having an outlet;
 - a secondary product chamber outlet in selective fluid communication with the sprayer tip;
 - a manual control which travels through a range, the range including a first position and a second position; and
 - a valve assembly responsive to the manual control, wherein when the manual control is in the first position, the primary product chamber outlet is closed; and wherein when the manual control is in the second position, the primary product outlet is open.
- 20 2. The airless application system of claim 1 wherein the manual control is a trigger, and wherein a first trigger position is a rest position toward which the trigger is biased, and wherein a second trigger position is a substantially fully depressed position of the trigger.

3. The airless application system of claim 2 further comprising a trigger guard.
4. The airless application system of claim 2 further comprising a handle toward which the trigger moves for the second trigger position.

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5. The airless application system of claim 1 wherein the primary product container comprises:
 - a relatively rigid canister;
 - a collapsible bag within the relatively rigid canister, the collapsible bag containing a primary product;
 - a propellant in a space between the outside of the collapsible bag and the inside of the relatively rigid canister; and
 - a valve connected to the relatively rigid canister, the valve comprising a primary product port in selective communication with the collapsible bag and a propellant port in selective communication with the space between the outside of the collapsible bag and the inside of the relatively rigid canister.

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6. The airless application system of claim 5 further comprising a perforated tube sealed in the collapsible bag.

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7. The airless application system of claim 5 wherein the valve further comprises a pressure relief port.

8. The airless application system of claim 5 wherein the propellant in the space between the collapsible bag and the relatively rigid canister is under a pressure of between about 20 and about 500 psig.
- 5 9. The airless application system of claim 1 further comprising a check valve adjacent to the sprayer tip.
10. The airless application system of claim 1 further comprising a secondary product chamber for holding a secondary product to be dispensed through the sprayer tip, the secondary product chamber in selective fluid communication with the secondary product chamber outlet.
11. The airless application system of claim 10 further comprising a valve to control the secondary product chamber outlet.
- 15 12. The airless application system of claim 1 further comprising a handle.
13. The airless application system of claim 1 further comprising a secondary product chamber for holding a secondary product to be dispensed through the sprayer tip, the secondary product chamber in selective fluid communication with the sprayer tip, the secondary product chamber having an inlet and the secondary product chamber outlet.
- 20 14. The airless application system of claim 13 wherein when the manual control is in the first position, the primary product chamber outlet and the secondary product chamber inlet are closed

and the secondary product chamber outlet is open; and wherein when the manual control is in the second position, the primary product outlet and the secondary product chamber inlet are open and the secondary product chamber outlet is closed.

5 15. The airless application system of claim 13 wherein when the manual control is moved from the first position to the second position, the secondary product chamber outlet is closed before the primary product chamber outlet and the secondary product chamber inlet are opened.

10 16. The airless application system of claim 13 wherein when the manual control is moved from the first position to the second position, the secondary product chamber outlet is closed before the primary product chamber outlet is opened, and the primary product chamber outlet is opened before the secondary product chamber inlet is opened.

15 17. The airless application system of claim 13 wherein when the manual control is moved from the second position to the first position, the primary product chamber outlet and the secondary product chamber inlet are closed before the secondary product chamber outlet is opened.

20 18. The airless application system of claim 13 wherein when the manual control is moved from the second position to the first position, the secondary product chamber inlet is closed before the primary product chamber outlet is closed, and the primary product chamber outlet is closed before the secondary product chamber outlet is opened.

19. The airless application system of claim 13 wherein the manual control is a trigger, and wherein a first trigger position is a rest position toward which the trigger is biased, and wherein a second trigger position is a substantially fully depressed position of the trigger.

5 20. The airless application system of claim 19 further comprising a handle toward which the trigger moves for the second trigger position.

21. The airless application system of claim 20 wherein the handle has a cavity to contain the secondary product, the cavity in selective fluid communication with the secondary product
10 chamber.

22. A method of airless spraying of a primary product and a secondary product comprising:
providing a sprayer tip;
providing a primary product chamber having an outlet, the primary product chamber in
15 selective fluid communication with the sprayer tip;
providing a secondary product chamber outlet, the secondary product chamber outlet in
selective fluid communication with the sprayer tip;
providing a primary product to the primary product chamber;
opening the primary product chamber outlet and thereby dispensing the primary product,
20 the primary product chamber outlet being opened while the secondary product chamber outlet is
closed;
closing the primary product outlet;
providing a secondary product to the secondary product chamber outlet;

opening the secondary product chamber outlet and thereby dispensing the secondary product, the secondary product chamber outlet being opened after the primary product chamber outlet is closed; and

closing the secondary product chamber outlet.

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23. The method of claim 22 further comprising providing a check valve adjacent to the sprayer tip.

24. The method of claim 22 further comprising providing the secondary product in a
10 secondary product chamber which is in selective fluid communication with the secondary product chamber outlet.

25. The method of claim 24 further comprising contacting the secondary product chamber with the secondary product chamber outlet thereby opening the secondary product chamber
15 outlet.

26. The method of claim 25 wherein the secondary product chamber outlet includes a needle through which the secondary product flows when the secondary product chamber is in contact with the secondary product chamber outlet.

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27. A method of airless spraying of a primary product and a secondary product comprising:
providing an airless application system comprising:
a primary product container; and

a sprayer in fluid communication with the primary product container, the sprayer comprising:

a sprayer tip;

a primary product chamber for holding a primary product to be dispensed

5 through the sprayer tip, the primary product chamber in selective fluid communication with the sprayer tip, the primary product chamber having an outlet;

a secondary product chamber outlet in selective fluid communication with the sprayer tip;

10 a manual control which travels through a range, the range including a first position and a second position; and

a valve assembly responsive to the manual control, wherein when the manual control is in the first position, the primary product chamber outlet is closed; and wherein when the manual control is in the

15 second position, the primary product outlet is open;

providing a primary product to the primary product chamber from the primary product container;

moving the manual control from the first position to the second position, thereby opening the primary product chamber outlet;

20 dispensing the primary product from the sprayer tip;

moving the manual control from the second position to the first position, thereby closing the primary product chamber outlet;

providing the secondary product to the secondary product chamber outlet;

opening the secondary product chamber outlet after the primary product chamber outlet has been closed and dispensing the secondary product; and
closing the secondary product chamber outlet.

5 28. The method of claim 27 further comprising providing the secondary product in a secondary product chamber which is in selective fluid communication with the secondary product chamber outlet.

29. The method of claim 28 further comprising contacting the secondary product chamber 10 with the secondary product chamber outlet thereby opening the secondary product chamber outlet.

30. The method of claim 29 wherein the secondary product chamber outlet includes a needle 15 through which the secondary product flows when the secondary product chamber is in contact with the secondary product chamber outlet.

31. The method of claim 27 further comprising providing a check valve adjacent to the sprayer tip.

20 32. The method of claim 27 wherein the manual control is a trigger, and wherein the first position of the manual control is a rest position toward which the trigger is biased, and wherein the second position of the manual control is a substantially fully depressed position of the trigger.

33. The method of claim 32 further comprising a handle toward which the trigger moves for the second trigger position.

34. The method of claim 33 wherein the handle has a cavity to contain the secondary product, 5 the cavity in fluid communication with the secondary product chamber.

35. The method of claim 27 further comprising providing a secondary product chamber for holding a secondary product to be dispensed through the sprayer tip, the secondary product chamber having an inlet and the secondary product chamber outlet.

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36. The method of claim 35 wherein when the manual control is in the first position, the primary product chamber outlet and the secondary product chamber inlet are closed and the secondary product chamber outlet is open; and wherein when the manual control is in the second position, the primary product outlet and the secondary product chamber inlet are open and the 15 secondary product chamber outlet is closed.

37. The method of claim 36 further comprising closing the secondary product chamber outlet before opening the primary product chamber outlet and the secondary product chamber inlet.

20 38. The method of claim 36 further comprising closing the secondary product chamber outlet before opening the primary product chamber outlet, and opening the primary product chamber outlet before opening the secondary product chamber inlet.

39. The method of claim 36 further comprising closing the secondary product chamber inlet and the primary product chamber outlet before opening the secondary product chamber outlet.

40. The method of claim 36 further comprising closing the secondary product chamber inlet
5 before closing the primary product chamber outlet, and closing the primary product chamber outlet before opening the secondary product chamber outlet.

41. A method of airless spraying of a primary product and a secondary product comprising:
providing a sprayer tip;
10 providing a primary product chamber having an outlet, the primary product chamber in selective fluid communication with the sprayer tip;
providing a secondary product chamber having an outlet and an inlet, the secondary product chamber in selective fluid communication with the sprayer tip;
providing a primary product to the primary product chamber;
15 closing the secondary product chamber outlet;
opening the primary product chamber outlet, thereby dispensing the primary product, the primary product chamber outlet being opened after the secondary product chamber outlet is closed;
providing a secondary product;
20 opening the secondary product chamber inlet, thereby filling the secondary product chamber with the secondary product, the secondary product chamber inlet being opened after the primary product chamber outlet is opened;
closing the secondary product chamber inlet;

closing the primary product chamber outlet, thereby stopping the primary product from being dispensed, the primary product chamber outlet being closed after the secondary product chamber inlet is closed; and

opening the secondary product chamber outlet, thereby dispensing the secondary product,

5 the secondary product chamber outlet being closed after the primary product chamber outlet is closed.

42. The airless application system of claim 1 wherein the primary product container comprises:

10 a relatively rigid canister;
a collapsible bag within the relatively rigid canister, the collapsible bag containing
a propellant;
a primary product in a space between the outside of the collapsible bag and the
inside of the relatively rigid canister; and
15 a valve connected to the relatively rigid canister, the valve comprising a primary
product port in selective communication with the space between the
outside of the collapsible bag and the inside of the relatively rigid canister
and a propellant port in selective communication with the collapsible bag.

20 43. The airless application system of claim 42 wherein the valve further comprises a pressure
relief port in selective communication with the collapsible bag.

44. The airless application system of claim 42 wherein the valve further comprises a quick release air fitting.

45. The airless application system of claim 42 wherein the propellant is under a pressure of
5 between about 20 and about 500 psig.